11. Projectiles

Program Name: Projectiles.java **Input File: projectiles.dat**

Mr. Appleworth is a Physics teacher and is teaching his students about projectiles and parabolas. His students will be constructing projectiles to shoot off the top of the football stands and into the woods. He wants them to create a simulation of the flight of their projectile prior to conducting the actual experiment.

The height of a given object projected into the air at a given time is given by the equation $H = V * T - 16 * T^2 + c$, where V is the initial velocity, T is the time in seconds since the projectile was fired, and c is the initial height of the object. He has asked you to write a program that will find highest integer height that the object will reach and the time in seconds that the object will first reach that height.

Input
The first line of input will contain a single integer `n` that indicates the number of simulations to follow. Each of the following `n` lines will contain two integers in the form `V c` representing the values of the Velocity and the initial height respectively of the equation that is in the form of the equation above. Each of items will be separated by a space.

Output
For each equation, you will print `HEIGHT h TIME t`, where *h* is the maximum integer height the object reached and *t* is the time in integer seconds that it first reached that height.

Example Input File
```
3
120 20
200 12
250 10
```

Example Output to Screen
```
HEIGHT 244 TIME 4
HEIGHT 636 TIME 6
HEIGHT 986 TIME 8
```